face of a friend. This knowledge is as valuable in making a diagnosis of pneumonia as that gained by the stethoscope.

One who has been special nurse to twenty or fifty or a hundred laparotomies, who has watched every minute of the first three days for the faintest sign of things going wrong—such a one would know better how to make a prognosis in abdominal cases than she ever could know without this experience.

As for treatment, the nurse not only knows what to give, but she knows how to give it. There are wise men who couldn't show the helpless amateur at nursing how to make a mustard plaster or fill an ice-bag.

One of the funniest sights ever seen is a dignified medical man who could tell you all about Cæsarian sections and podalic versions trying his hand for the first time at dressing the new baby.

Two words of warning might be given to the nurse who has in mind the study of medicine: first, don't make the fact that you know this or that because you are a trained nurse prominent to your fellow-students, or they will make you wish you had never seen a training-school; second, don't think your art can supply the place of the science you are in school to learn, or that your intuitions will take the place of reason.

HOME ECONOMICS

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XII. THE COOKING OF FOOD—STARCHES

Two very different views of the place of cookery and its relation to human welfare are those propounded by Socrates more than two thousand years ago and by Ruskin. Socrates says: "Cookery may seem to be an art, and it is not an art, but only experience and routine. Cookery simulates the disguise of medicine and pretends to know what food is the best for the body; and if the physicians and the cooks had to enter into a competition in which children were the judges, or men who had no more sense than children, as to which of them best understands the goodness or badness of food, the physician would be starved to death. A flattery, I deem this, and an ignoble sort of thing, because it aims at pleasure instead of good. And I do not call

this an art at all, but only an experience or routine, because it is unable to explain or to give a reason of the nature of its own applications. And I do not call any irrational thing an art."

Ruskin says: "It means the knowledge of Medea, and of Circe, and of Calypso, and of Helen, and of Rebekah, and of the Queen of Sheba. It means the knowledge of all herbs, and fruits, and balms, and spices; and of all that is healing and sweet in fields and groves and savory in meats; it means carefulness, and inventiveness, and watchfulness, and willingness, and readiness of appliance; it means the economy of your great-grandmothers, and the science of modern chemists; it means much tasting, and no wasting; it means English thoroughness, and French art, and Arabian hospitality; and it means, in fine, that you are to be perfectly and always 'ladies'—'loaf-givers;' and, as you are to see, imperatively, that everybody has something pretty to put on, so you are to see, yet more imperatively, that everybody has something nice to eat."

I am afraid modern cookery must sometimes plead guilty to the indictment of Socrates, so long as its sole aim is merely to tickle the palate and give pleasure rather than good. It cannot hope for a high position among the world's arts. But when we undertake the study of cookery from a different standpoint; when we investigate the food materials that we are using, and try to explain the changes that take place from the application of heat, and when our aim in this is to produce a food that is not only palatable but digestible in the highest degree, we feel that Ruskin has understated, rather than overstated the case.

A study of starch and its changes leads us far into the mysteries of botany and of chemistry, and even here we find many of our problems still unsolved. Certain things we can observe even though we may not be able adequately to explain them. If, with the aid of the microscope, a comparison be made between uncooked starch grains, the same grains cooked in water at a temperature of 140° F., and boiled starch, a marked difference will be seen. The low temperature cooking in the presence of water has enlarged the grains often to several times their original size. The boiled starch shows no structure whatever, showing that the grain has completely disintegrated in some way. There is every indication that it is in the latter condition only in which the starch is easily digested. Uncooked starch passes through the system practically undigested.

In the cooking of starchy foods another factor has generally to be considered. The starchy vegetables like potato have their starch-grains lying within the cellulose walls of the plant. Not only must the starch itself be cooked, but the cellulose walls must be broken down so that

the saliva and the intestinal juices may reach the starch. The disintegration of these walls is possibly purely mechanical, but it is exceedingly important.

It is hardly possible to overcook starch, unless one is using it simply as a thickening agent. One might, for instance, cook a corn-starch pudding so long that part of the starch would be changed into dextrin with a distinct loss of thickening power and a probable increase in digestibility. This change and the further one into sugar are almost sure to take place if starch is cooked for any length of time with an acid like lemon-juice.

Many foods contain both proteid and starch, and the problem becomes one of reconciling the low cooking temperature of the proteid with the high cooking temperature of the starch. In combinations of materials this can often be effected by first cooking the starch and then adding the proteid. For instance, a certain rule calls for milk, corn-starch, and egg. The egg in this case must be added just at the end of the process after the starch has been thoroughly cooked. When this is impossible, as it often is (for instance, in the case of the milk in the same rule), the principle of proteid cookery must be sacrificed to that of starch. In other words, it is more important to have the starch thoroughly cooked than to have the proteid cooked at a low temperature if there must be a choice between the two. A good illustration of this is the case of bread where we have both proteid and starch. We cannot separate these, therefore the higher temperature and the long thorough cooking must be the rule.

(To be continued.)

FORMULÆ FOR ANTISEPTIC SOLUTIONS USED IN THE ILLINOIS TRAINING-SCHOOL FOR NURSES

REVISED AND CORRECTED BY PROFESSOR WALTER S. HAINES
Professor of Chemistry, Rush Medical College

THESE formulæ are not absolutely accurate but sufficiently so for practical purposes.

Bichloride of Mecury (corrosive sublimate; mercuric chloride).

Bichloride of Mercury Solution (1 in 500).

Bichloride of mercury, two drachms (by weight); common salt (sodium chloride), ten drachms; cold sterile water, one gallon.

Dissolve the salt and corrosive sublimate in about half a pint of water; filter this into sufficient water to make the gallon. Bichloride